RESPONSE UNDER 37 CFR 1.116 - EXPEDITED PROCEDURE - ART UNIT: 2635 AF/2635

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In The United States Patent And Trademark Office

Application Number: 09/967,106

Application Filed: 09/27/2001

Applicant(s): Venkat Konda

Title: Strictly Nonblocking Multicast Multi-Stage Networks

Examiner/Art Unit: Brian A. Zimmerman / 2635

San Jose, 2004 September 23, Thu

AMENDMENT B

(and the response to office letter dated 8/16/2004)

Mail Stop AF

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia, 22313-1450

Sir:

In response to the office action mailed 2004 August 16, please consider the following Amendment B.

First Applicant addresses the novelty and unobviousness of the current invention over the prior art, including the U.S. Patent 5,801,641 by Yang et. Al. Applicant also

submits that he has reviewed all the other cited references and they do not show the current invention or render it obvious.

I. RESPONSE TO ADDRESS THE REJECTIONS 2 AND 3:

Applicant respectfully submits to refer back to the applicant's prior response to the prior office action.

To address the rejections 2 and 3, Applicant submits that the term "fan-out" is used in four different contexts. 1) A multicast connection has a fan-out of maximum of r_2. 2) To set up the multicast connection in the three-stage networks, for the strictly nonblocking operation, the multicast connection is fanned out in each of the three stages namely the first stage, the second stage and the third stage. Accordingly there is fan-out in the first stage, fan-out in the second stage and the fan-out in the third stage of the three-stage network for the multicast connection after it is setup. Applicant respectfully believes that the meaning of the term "fan-out" in these four different contexts caused the rejections 2 and 3. And the following table clarifies these issues.

The following table addresses the list of items where the current invention is superior over U.S. Patent 5,801,641 by Yang et. al:

Item addressed	**Solutions in patent 5,801,641 by Yang et.al**	**Solutions in Current Application**
Number of middle stage switches (for strictly nonblocking operation)	$m \geq \min\left((n_1 - 1)x + (n_2 - 1)r_2^{1/x}\right)$ where $1 \leq x \leq \min(n_2 - 1, r_2)$	$m \geq 2 * n_1 + n_2 - 1$
Strictly nonblocking operation of the three-stage network with fan-out of the multicast connection being **a maximum of** r_2 is the **goal** of both the patent 5,801,641 by Yang and current application. But to achieve this goal the multicast connection is fanned-out **in**		

each of the three different stages of the network as described below.		
Fan-out in the first stage (for strictly nonblocking operation)	Yang does not address what is the fan-out of a multicast connection in the **first** stage.	Current invention claims **a fan-out of at most two** in the **first** stage, irrespective of the values of n_1 , n_2, r_1 and r_2. **(This is a very strong claim; and with** $m \geq 2 * n_1 + n_2 - 1$**, a much smaller number than that of Yang's)**
Fan-out in the second stage (for strictly nonblocking operation)	Yang does not address what is the fan-out of a multicast connection in the **second** stage.	Current invention claims **an arbitrary fan-out** in the **second** stage, irrespective of the values of n_1 , n_2, r_1 and r_2. **(This is a very strong claim; and with** $m \geq 2 * n_1 + n_2 - 1$**, a much smaller number than that of Yang's)**
Fan-out in the third stage (for strictly nonblocking operation)	Yang does not address what is the fan-out of a multicast connection in the **third** stage.	Current invention claims **an arbitrary fan-out** in the **third** stage, irrespective of the values of n_1 , n_2, r_1 and r_2. **(This is a very strong claim; and with** $m \geq 2 * n_1 + n_2 - 1$**, a**

		much smaller number than that of Yang's)
Figure 2b in patent 5,801,641 by Yang	In Figure 2b, Yang is limiting the fan-out of the multicast connection to $r_2 = 3$. **(And hence Yang's solution is limited to $r_2 = 3$. However Yang does not address how the multicast connection is fanned out in each of the three different stages for arbitrary values of r_2.**) (More over in Figure 2b, Yang is just showing an example fan-out of a multicast connection where $r_2 = 3$, but Yang did not generalize the fan-out of the multicast connection in each of the three stages for nonblocking operation of the three-stage network.)	Current application claims for the strictly nonblocking behavior with the said $m \geq 2 * n_1 + n_2 - 1$ middle switches, and multicast connections with **arbitrary fan-out for any value of r_2**, a fan-out of **at most two in the first stage** is sufficient. (by cleverly choosing two middle switches as described in the scheduling algorithm). **(This is a very strong and fundamental claim compared to Yang's.)**
		One more key claim in current application is the minimum number of middle stage switches (in a symmetrical network) $m \geq 3 * n - 1$ (where $3 * n - 1 = 2 * n + (n - 1)$ where $2 * n$ **is directly related to a fan-out of at most two in the first**

		stage switches irrespective of the value of r. (This is a very fundamental and elegant solution.) The same is the case in the non-symmetrical network

1) **The rejection of Claims 137-149, 156-168, 192 under 35 USC 102(b)**

Accordingly applicant submit that the claims do comply with § 102(b) and therefore request withdrawal of this rejection.

2) **The rejection of Claims 116-130 under 35 USC 103(a)**

Accordingly applicant submit that the claims do comply with § 103(a) and therefore request withdrawal of this rejection.

Claims: Cancel the claims 126-130, 145-149, 164-168 of record and substitute new claims as follows.